DECISION MEMO
FRANKS VALLEY FOREST HEALTH PROJECT
U.S. FOREST SERVICE
PLUMAS NATIONAL FOREST
MT. HOUGH RANGER DISTRICT
PLUMAS COUNTY, CALIFORNIA

BACKGROUND

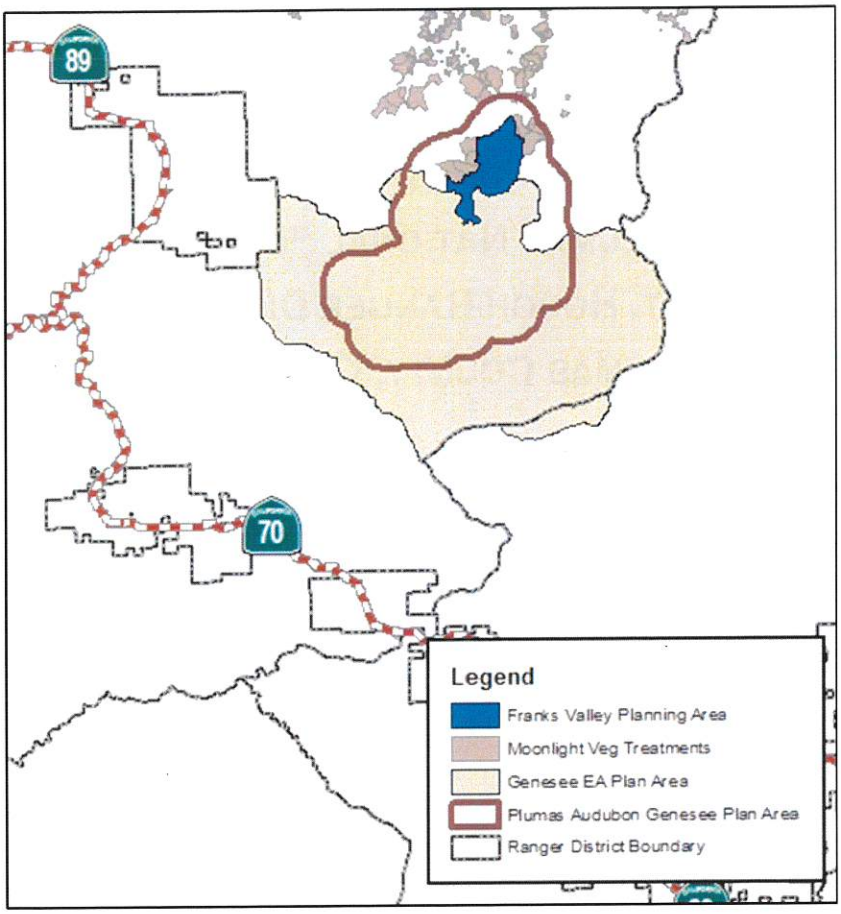
The USDA Forest Service, Plumas National Forest, Mt. Hough Ranger District is proposing a variety of management activities intending to reduce the threat of tree mortality caused by insects and disease within the Franks Valley Forest Health Project area. The project area exhibits above "normal" stocking levels, and during the last several years, has exhibited elevated levels of tree mortality caused by bark beetles especially during periods of drought. There is a need to restore these stands in order to increase their health and resilience to insect outbreaks and fire.

The Franks Valley project area falls within both the planning areas of the Moonlight Fire Restoration EA and the Plumas Audubon Genesee Wildfire Restoration Plan. These projects combined will restore forested stands on a landscape level. The Plumas Audubon Genesee Wildfire Restoration Plan is a comprehensive plan that identified treatments promoting Baker cypress *(Hesperocyparis bakeri)* in the Research Natural Area located within the Franks Valley project area, improving wildlife habitat, and treatments to protect homes in Franks Valley from wildfire.

Other forest health related goals include: 1) improving aspen stands and aspen regeneration, 2) Baker cypress habitat and 3) hydrologic function of the area by reducing non-system road densities.

The project area is approximately 2,534 acres and is located on the Mt. Hough Ranger District of the Plumas National Forest. Vicinity location is along Beardsley Grade north of Genesee Valley and southwest of Antelope Lake. Franks Valley is about 12 miles from Taylorsville, CA

Legal Description for the Franks Valley project area is T26N R11E and R12E.



Purpose and Need

The objectives for this project are to:

1) Improve landscape-level forest health treatments through mechanical thinning;
2) Reduce forest fuels through hand thinning and prescribed fire
3) Improve wildlife habitat by enhancing scarce aspen habitat through the reduction of conifer competition and encroachment
4) Improve watershed conditions through the obliteration of non-system roads.

The Forest Service compared broad desired conditions identified in the Plumas National Forest Land and Resource Management Plan (USDA 1988) as amended by the Sierra Nevada Forest Plan Record of Decision (SNFPA ROD, USDA 2004), referred to as the Forest Plan, with the site-specific conditions present in the project area.

Forest Health

There is an urgent need to change forest conditions in Franks Valley to improve forest health concerns. A recent evaluation of stand conditions in the project area has shown a dramatic increase in total number of trees dead starting 2015 (USDA 2018). Currently there are pockets of

dead and dying true fir infected with *Heterobasidion* root disease scattered throughout Franks Valley project area. Dead, broken off, large diameter down trees lay clustered in these pockets, contributing to a high risk of high severity wildfire. Factors contributing to these mortality clusters are: 1) high stand densities, 2) high basal area, 3) and true fir growing in marginally suitable habitat. Treating these stands and reducing the stand basal area will reduce competition and may reduce this mortality risk.

Many acres within the Franks Valley project area have shifted in species composition from a pine-cedar stand to a true fir or mixed pine/fir dominated stand. This is evidenced by historic stumps, past management techniques, fire suppression, and current composition. The shade tolerant true fir suppress less shade tolerant species including Baker cypress (*Hesperocyparis bakeri*), aspen (*Populus tremuloides*), and pine (*Pinus jeffreyi, Pinus ponderosa, Pinus lambertiana*). With the increased recruitment of true fir, shade intolerant tree species have had a difficult time establishing and growing in the understory. Additionally, shade tolerant trees are capable of growing and regenerating in a shaded understory environment. Hence, this species composition shift allows for true fir to continue to dominate a stand by precluding the recruitment of shade intolerant conifers. However, the Franks Valley Project area receives historically less than 35 inches of precipitation annually, making it a less than ideal growing site for drought intolerant white fir. As a result, the currently over stocked, even aged stand conditions are increasing the susceptibility of the conifers within the project area to insect attack and disease. Extended drought periods are exacerbating insect and disease effects as evidenced by increased pockets of tree mortality and damage, which further maintains the disease cycle and increases fuel loading and high severity wildfire risk.

Fuels

Within the Franks Valley project area, there are an estimated 160 acres of private land with approximately 10 residential structures including seasonal cabins. This project will reduce fuels on forest land surrounding these residences. This will increase defensible space and protection against wildfire in this wildland urban interface. In addition to a fuels reduction benefit, the use of prescribed burning will return the role of fire to the landscape. This will create healthier forest conditions by cycling nutrients, reducing stand density, and promoting fire resistant trees. Application of fire to these stands will result in hotter burning in some areas which will create more openings and cooler burning in other areas leaving more residual vegetation. This patchiness and uneven burning increases heterogeneity, is consistent with the historic range of variation for these stands, and promotes varied habitat for wildlife and plant resources.

The predominant tree size in these forested stands ranges from 11 to 24 inches diameter at breast height. This stand type covers 99% of the forested acres within the project area indicating a very even age landscape with little to no differentiation in tree sizes (trees smaller than 11 inches and greater than 24 inches in size). These homogenous even aged stands are highly susceptible to high severity fires and disease occurrences.

Wildlife Habitat Improvement

Wildlife habitat is an important component of the Franks Valley Project. The project area has documented use by California spotted owls and northern goshawks. Habitat used by these two

important late seral species is at risk of loss to stand replacement fire due to historically high fuel loading. During the Moonlight Fire, California spotted owl wildlife protected activity centers (PACs) experienced some of the greatest percentage of high severity fire effects of any area within the fire perimeter, probably as a result of the lack of fuel treatments in these areas (Dailey et al. 2008, North et al 2012). As a result of the Moonlight and Antelope Complex fires, 17 of the 19 spotted owl PACs affected by the Moonlight have been rendered unsuitable due to high severity wildfire effects and have been removed from the Plumas NF PAC distributional network (USDA 2008). Fuel reduction within and adjacent to the PACs would reduce the potential for loss during wildfires.

Aspen stands are an uncommon habitat type within the project area. They are important to wildlife due to their unique status in a conifer dominated landscape. These stands are relatively small in size and are being encroached upon and overtopped by conifers, primarily Jeffrey pine and ponderosa pine. Conifers compete with aspen for water, nutrients, sunlight and growing space. Over time, conifers have created a highly shaded environment, potentially leading to a complete loss of this unique habitat.

Watershed Improvement

Non-system routes within the Franks Valley Project may be potentially used by motorized vehicles. These routes were not added to the NFS transportation network during the travel management planning process (USDA 2010), but were not physically obliterated or closed.

Road densities within the watersheds analyzed are moderate to high because of these non-system roads. These existing non-system roads (1.2 miles) would be obliterated which would decrease sediment transport and surface runoff to adjacent watercourses. When resource conditions prevent obliteration (e.g. Research Natural Area restrictions or unavoidable weed populations), those non-system road segments would merely be blocked to prevent vehicle traffic.

DECISION

I have decided to implement the following activities listed in Table 1 and displayed in Figure 1 and Figure 2:

Table 1. List of proposed activities in the Franks Valley Project

Primary Rx	Primary Rx Logging System	Secondary Rx	Tertiary Rx	Acres
Forest Health*	Mechanical	Underburn	N/A	1836.8
Forest Health*	Mechanical	Underburn	Interplanting Pine	9.5
Aspen	Mechanical	Underburn	N/A	67.8
Baker Cypress	Hand Thin	N/A	N/A	76.6
Fuels Only	Hand Thin (Incidental)	Underburn	N/A	295.1
HRCA^	Hand Thin	Underburn	N/A	49.8
Pre-commercial Thin	Mechanical	Underburn	N/A	13.2
CHWR4P**	Hand Thin	Underburn	N/A	65.4
CWHR4P	Hand Thin	Underburn	Interplanting Pine	0.9
PAC^*	Hand Thin	Underburn	N/A	85.8
			Grand Total	2,500.9
		Non-system Road Obliteration		20 miles

*Forest health prescriptions are broken down into NE, SW and Ridgetop Rx's that are based upon aspect and topography
^HRCA = Home Range Core Area
**CHWR4P = Primarily CHWR 4P stands that are not dense for mechanical thinning, but need hand thinning to bring them to desired condition
^*PAC = Protected Activity Center

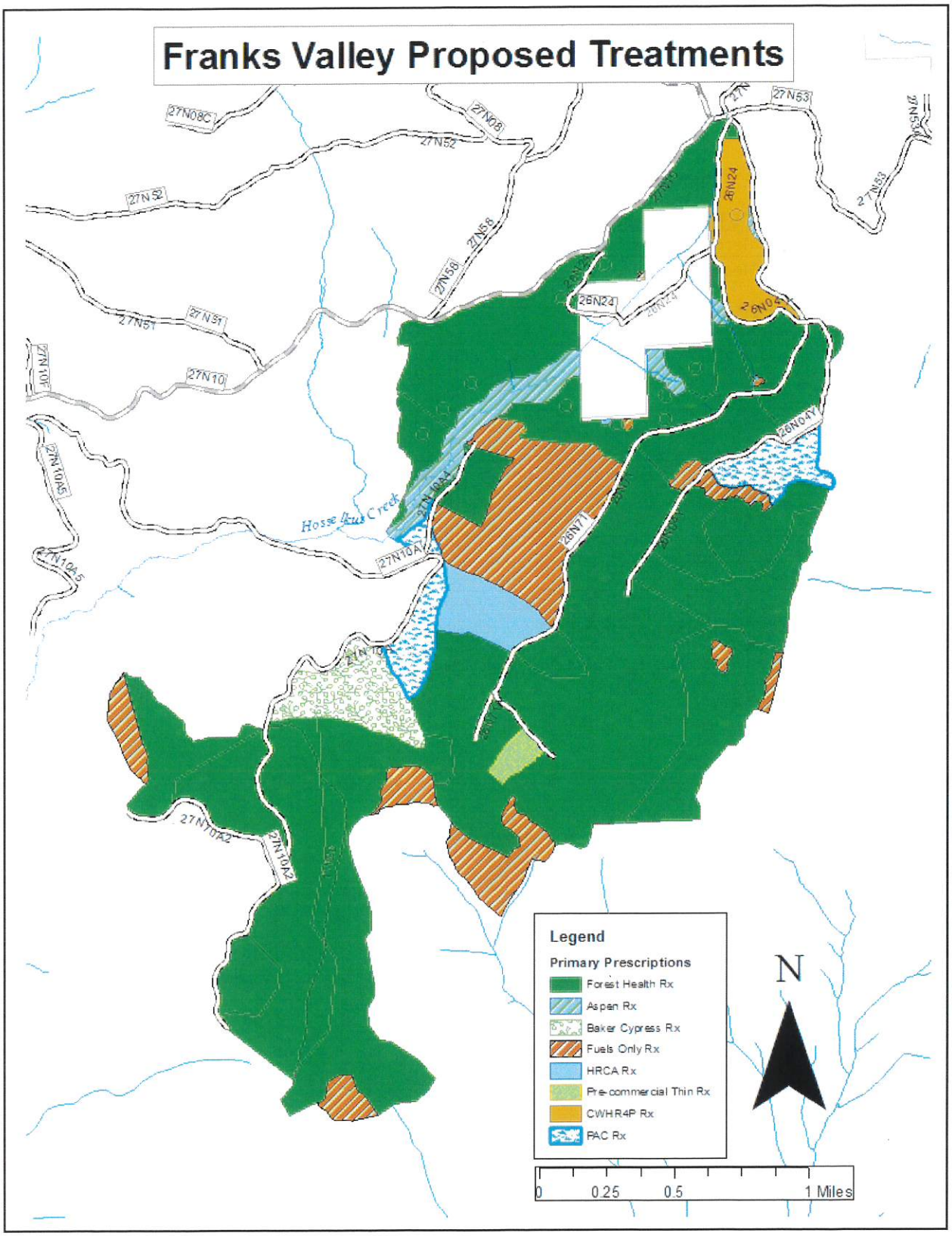


Figure 1. Map of proposed activities in the Franks Valley Project area

Forest Health Treatments

Forested stands in the Franks Valley Project are currently over stocked and are at risk of loss to insects, disease and drought. *Heterobasidion* root disease is causing pockets of mortality in true fir species. Although diseases in forested environments are not uncommon, the persistence of *Heterobasidion* across the Franks Valley landscape is more than typically encountered in similar nearby forested stands. The forest health treatments are designed to increase long term vigor and improve resiliency to disturbances. Trees selected for harvest will be done using variable density thinning approach. Also shade intolerant, fire resistant tree species will be promoted to help shift stand composition towards a more diverse species composition. See Appendix A for more detailed forest health marking guidelines:

- Mechanically thin trees within diameters 3.0"-29.9"DBH for timber stand improvement and fuels reduction
- Follow SNFPA standards and guidelines for minimum canopy cover retention in HRCAs and all applicable CWHR stand and density types
- Promote red fir over white fir when thinning stands of pure true fir
- Expand canopy gaps around insect or disease pockets to ¼ acre-½ acre diameter or greater
- Priority for retention: healthy, fire resistant shade intolerant trees that incidentally occur in canopy gap and expansion area
- Prioritize for removal shade tolerant, drought intolerant conifers 3.0-29.9" DBH when selecting trees to remove from insect and disease pockets
- Plant desired shade intolerant, fire resistant conifers (ponderosa pine, Jeffrey pine, and sugar pine) as needed in gaps to help meet desired conditions.
- Use mechanical equipment for site preparation prior to planting, which may include grapple pull and pile brush, soil scarification, track machinery or bucket work to bare mineral soil
- Underburn and/or pile burn mechanical thin units post-harvest

Aspen Restoration

In the Sierra Nevada, quaking Aspen (*Populus tremuloides*) stands are among the most diverse of plant communities. Franks Valley has aspen stands in varying degrees of stand health and structural conditions. Treatments in these aspen will address the current condition of each individual aspen stand. Desired condition is vigorous and sustainable healthy aspen stand comprised of younger regeneration and healthy large overstory aspen trees.

See Appendix B for more detailed aspen restoration marking guidelines.

The objectives of aspen restoration include:

- Reduce conifer competition and encroachment on aspen stands

  - Remove all competing true fir 3.0"-29.9:" DBH by mechanical means
  - Remove all pine up to 24.0" DBH
- Retain very large diameter trees that exhibit old growth characteristics indicating their co-existence with the aspen prior to fire exclusion policies and would need to show characteristics that indicate they are not a threat to aspen including slower growth and reduced seed production
- Remove conifer biomass and material through mechanical harvest, biomass removal, and/or grapple piles and hand piles
- Hand pile material or lop and scatter in mechanically restricted zones
- Prescribe burn post-harvest
- Include in aspen stand evaluation the following treatment: if above treatments fail to stimulate aspen, consider cutting aspen stems (all diameters) to stimulate aspen growth response

Baker Cypress Restoration

Franks Valley project area is home to the southernmost population of only eleven remnant populations of Baker cypress trees. The population in Franks Valley is located in the Mud Lake Research Natural Area (RNA) - Wheeler Peak Unit which was created to protect this population of Baker cypress.

Baker cypress has very specific regeneration requirements. The serotinous cones require high severity fire to successfully germinate in the post fire environment. Typically, this results in a very dense post fire Baker cypress regeneration event.

While there are some areas of competition from white fir within the Wheeler Peak site, much of the unit is characterized by small, dense groves of Baker cypress isolated from one another by open, rocky soil. As the stand descends from the ridgeline, Baker cypress becomes less dominant and shade tolerant trees more prevalent. Treatments in the RNA would be designed to reduce competition and promote Baker cypress by removing shade tolerant trees and preserve the mature, cone bearing Baker cypress until a future fire creates ideal conditions for Baker cypress regeneration. Additionally, although Baker cypress treatments are proposed and analyzed in the Franks Valley project, authority and approval for these treatments can only occur through a permitting process approved by the RNA committee and Pacific Southwest (PSW) Station Director.

See Appendix C for more detailed Baker cypress restoration marking guidelines

The objectives of Baker cypress restoration include:

- Reduce the threat to immature Baker cypress from frequent stand replacing fires
- Facilitate a local, Baker cypress replacement fire when appropriate without endangering the rest of the stand
- Reduce inter-tree competition and encourage growth of the Baker cypress

- Exclude treated areas from prescribed fire

California Spotted Owl Protected Activity Center Habitat Improvement

Many lands allocated to wildlife Protected Activity Centers (PACs) were burned at high severity during the Moonlight fire in 2007, the perimeter of which is less than three miles from Franks Valley. Due to the dearth of late seral habitat, there is a need to treat remaining habitat to reduce the risk of future catastrophic wildfire. Within the Franks Valley project, a portion of PACs are proposed to have fuels reduction and hand thin treatments. This will help provide quality nesting and foraging habitat for current and future occupants, and make the habitat more resilient to future disturbance.

- Hand thin up to 8.0" DBH as needed to facilitate prescribed burning and to promote legacy and critical habitat trees
- Hand thin and pile or lop and scatter fuels as needed
- Promote fire resistant trees and prioritize shade tolerant conifers for removal
- In PACs that are true fir timber type, select white fir for removal and retain proportionally more red fir.
- Retained trees may be limbed to 6' height as needed to reduce ladder fuels
- Lightly rake around any critical habitat trees including nesting, roosting, and high value legacy trees
- For protection from fire: Target hand thinning around any critical habitat trees, including nesting, roosting, and high value legacy trees or create a thinned zone around a clump (containing one or more of those trees plus small and intermediate trees intermixed with ladder fuels)
- Hand pile thinned material and down woody debris (as needed) outside of dripline of tree canopy
- Prescribe underburn and burn piles in unit post treatment

Pre-commercial Thinning

Within the project area there is a 13 acre stand that was implemented for seed tree management, a regeneration practice where only a small number of individual trees are retained, scattered evenly across the harvest area, as a seed source. Typically these tend to be large, dominant individual trees of desired species and form to provide the seed source for the future stand. These 13 acres will be analyzed for pre-commercial thinning to release the smaller trees for growth.

- Remove sub merchantable trees 3.0"-9.9" DBH for timber stand improvement using mechanical equipment
- Pile and burn larger slash material or lop and scatter

Home Range Core Area (HRCA) Wildlife/Timber Stand Improvement Hand Thin

In Franks Valley there is one (non PAC) stand that will be hand-thinned. It is adjacent to the California Spotted Owl PAC on the west side of the project area. Although it has dense timber, the terrain is too steep for mechanical equipment. The Spotted Owl that occupies the adjacent PAC is monitored by telemetry. The telemetry data demonstrates that this Spotted Owl uses this steep area frequently (Dillingham 2019, personal communication). Hand thinning will facilitate underburning in this stand for habitat improvement. It will be analyzed for pile burning and/or broadcast underburn.

- Hand thin trees DBH 3.0"-16.0"
- Hand thin and pile or lop and scatter fuels
- Hand fall, limb, and retain down logs 10.0-16.0"diameter if this also meets fuels objectives
- Locate any piles outside of dripline of tree canopy
- Promote fire resistant, shade intolerant conifers.
- Retained trees may be limbed to 6' height as needed
- Prescribed burn

Low Density Hand Thin (CWHR4P)

This particular stand in the northern most part of the Franks Valley Project area is close to ideal stand conditions. Currently, the stand comprises of larger shade intolerant pine in the overstory and true fir in the understory. The true fir component is conifer infill that most likely resulted from previous management practices including fire suppression. Currently, density is too low to warrant mechanical removal, but treatment is necessary. Hand thin removal of shade tolerant conifers in the understory with post treatment underburn would bring this stand to the desired condition.

- Hand thin trees up to 16.0" DBH
    - Target true fir whenever possible
        - Smaller pines may be removed if necessary to reduce ladder fuels under larger overstory pine trees
- Locate any hand piles outside the dripline of residual overstory trees for pile burn and/or broadcast burn

Underburn Only (Fuels Only) and Post Treatment Underburn

Mixed conifer vegetation in the Sierra Nevada has co-evolved with a frequent fire return interval. Forested stands in the Franks Valley project area are significantly departed from the historic fire return interval. Regeneration that would have historically been eliminated by fire has survived and grown into dense, intermediate trees. Couple this with the above mentioned mortality issues

and large diameter surface fuels; the result is an ecosystem with extreme fuel loading and potential for high severity wildfire outside the normal range of variation.

The entire project area will be analyzed for reintroducing fire to the ecosystem through prescribed burning. It will also be used to help accomplish fuels, wildlife, and forest health objectives. Where it is not feasible or recommended to underburn, pile burning will be analyzed. Prescribed burning in this project is planned with an efficient economy of scale approach.

- Incidental hand thinning with chainsaws may occur as needed to facilitate prescribed burning.
- Utilize natural fire breaks and minimum impact techniques for containment and fire management whenever possible.
- Additional fuel breaks may be constructed (i.e. by hand or with small skid steer)
- Analyze project area to include all effective lighting techniques including use of helicopter for ignitions operations

Non-System Road Obliteration

Obliterate non-system roads that are causing erosion. An added benefit to removing non-system roads is improved habitat for wildlife including Spotted Owl and Northern Goshawk.

- Obliterate non-system roads that are utilized for commercial thin operations
- Obliterate non-system roads highlighted on map

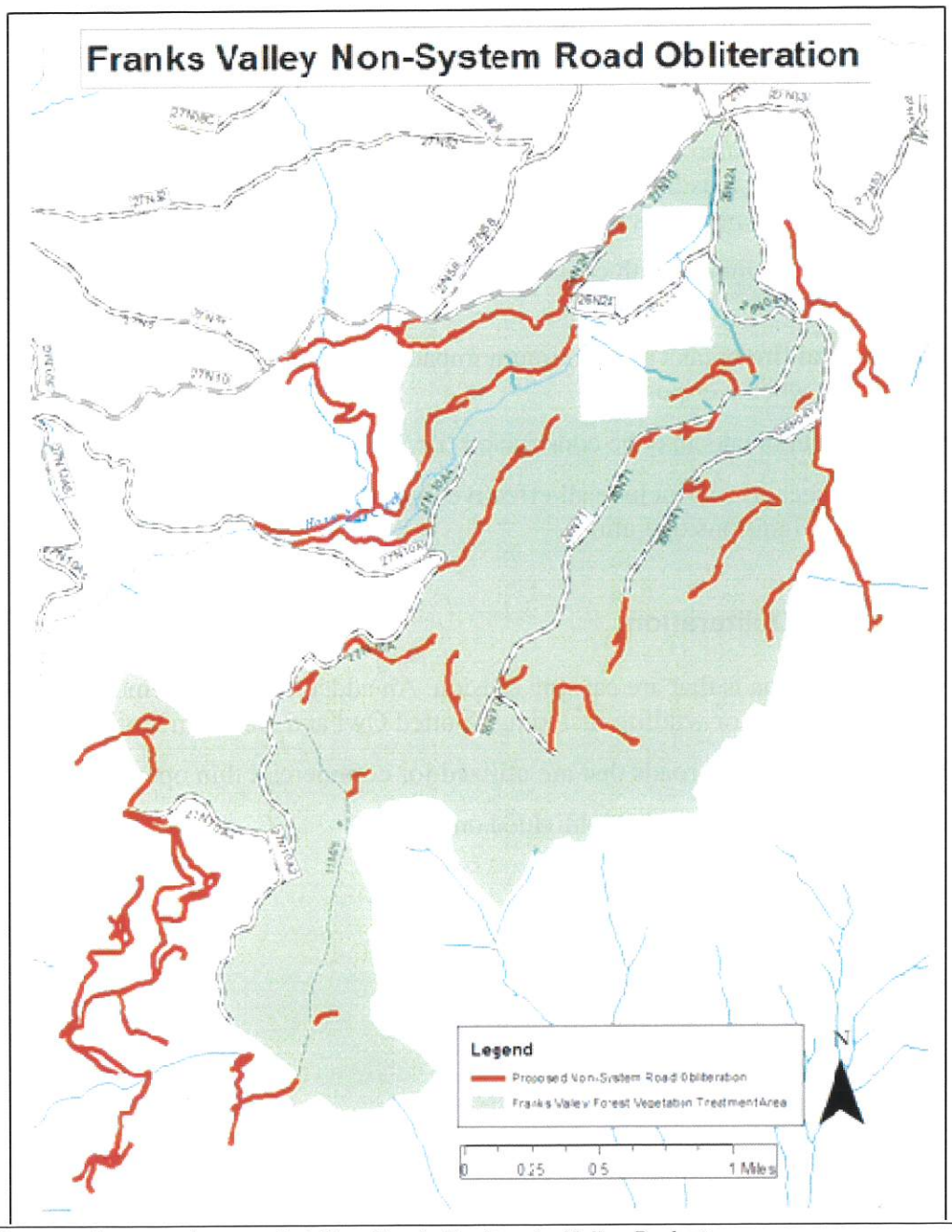


Figure 2. Proposed non-system road obliteration in the Franks Valley Project

These actions are categorically excluded from documentation in an environmental impact statement (EIS) or an environmental assessment (EA). The applicable category of actions is identified in agency procedures as:

Wildlife/Timber Stand Improvement: *Categorical Exclusion Category 36 CFR 220.6(e)(6)Timber stand and/or wildlife habitat improvement activities that do not include the use of herbicides or do not require more than 1 mile of low standard road construction.*

Non-system Roads and Trails 36 CFR 220.6(e)(20): *Activities that restore, rehabilitate, or stabilize lands occupied by roads and trails, excluding National Forest System roads and National Forest System trails to a more natural condition that may include removing, replacing, or modifying drainage structures and ditches, reestablishing vegetation, reshaping natural contours and slopes, reestablishing drainage-ways, or other activities that would restore site productivity and reduce environmental impacts.*

Category 6 is applicable because all forest vegetation treatments will benefit wildlife habitat and/or improve current stand conditions.

Category 20 is only category of actions that is allows non-system road obliteration as described in this Decision Memo using Categorical Exclusions. Therefore, it is the most appropriate.

I find that there are no extraordinary circumstances that would warrant further analysis and documentation in an EA or EIS. I took into account resource conditions identified in agency procedures that should be considered in determining whether extraordinary circumstances might exist:

- Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species –
    - Concurrence from the US Fish and Wildlife Service activities in the Franks Valley project may affect, but is not likely to adversely affect the gray wolf (USDI 2019a)
    - No Designated Critical habitat for the Sierra Nevada Yellow legged Frog exists in the action area or the analysis area. There would be no effect to Critical Habitat.
    - Based upon the type and degree of proposed activities within the wildlife and botany analysis area for the proposed action may affect individuals, but is not likely to result in a trend towards Federal listing or loss of viability for Region 5 Forest Service sensitive species, management indicator and/or migratory bird species due to LRMP standards for snags, down woody debris, riparian reserve buffers, limited ground disturbance and maintenance of canopy cover (USDA 2019a, 2019b).
- Flood plains, wetlands, or municipal watersheds – Flood plains and wetlands exist within the project area. Flood plain aspen habitat treatments are designed to improve ecological diversity and riparian vigor. The above recommended measures will minimize impacts to hydrologic function, water quality, sediment regimes and riparian habitat.

- Congressionally designated areas such as wilderness, wilderness study areas, or national recreation areas – None are present
- Inventoried roadless areas or potential wilderness areas – None are present
- Research natural areas – the Mud Lake RNA is present within the Franks Valley Project area. The activities and their effects within the RNA have been analyzed under this NEPA analysis. However all treatment activities will be authorized and permitted through the RNA committee. Baker cypress treatment prescriptions will be reviewed and approved by the RNA committee and PSW Station Director.
- American Indians and Alaska Native religious or cultural sites – Scoping letters were sent on April 10, 2019, to the following Tribes: Greenville Rancheria, Susanville Indian Rancheria, Estom Yumeka Tribe of Enterprise Rancheria, Tyme Maidu Tribe of Berry Creek Rancheria, Concow Maidu Tribe of Mooretown Rancheria, Mechoopda Indian Tribe of Chico Rancheria and Maidu Summit Consortium.
- Archaeological sites, or historic properties or areas – With the survey and reporting completed prior to decision and with the application of approved standard protection measures outlined within Region 5 Heritage Programmatic Agreement (2013), the project will have adverse effect on historic properties.

Public Involvement

This action was originally listed as a proposal on the Plumas National Forest Schedule of Proposed Actions (SOPA, dated 04/01/2017 to 06/30/2017) and updated periodically during the analysis. Additionally, the project was presented at the local Plumas Fire Safe Council on April 13, 2017. Various members of the public were present and asked project related questions. Pertinent tribes were also contacted regarding details about the project. Local organizations who held publicly attended events in the general project area were also informed. Additionally, a local landowner, Ray Kringel contacted Mt. Hough staff with general questions and comments.

Findings Required by Other Laws and Regulations

This decision is consistent with the 1988 Plumas National Forest Land and Resource Management Plan as amended by the 2004 Sierra Nevada Forest Plan Amendment Record of Decision. The project was designed in conformance with the above Decisions.

This project will be conducted in accordance with requirements of the California Central Valley Regional Water Quality Control Board to ensure compliance with California Water Code and the Federal Clean Water Act.

This project meets the requirements of the National Historic Preservation Act of 1966, as amended, and implementing procedures outlined in the Region 5 Programmatic Agreement (see project design features for this project).

The project does not affect any threatened, endangered or candidate species and thereby complies with the Endangered Species Act of 1973.

Management direction, including desired conditions and allowable activities within land allocations are set forth in the PNF LRMP (1988) as amended by the 2004 Sierra Nevada Forest Plan Amendment (SNFPA) Record of Decision. Visual quality objectives for the entire project area prescribe a natural appearing landscape by assuring that management activities remain visually subordinate to the natural landscape. No management activities are prohibited.
Administrative Review (Appeal) Opportunities

ADMINISTRATIVE REVIEW (APPEAL) OPPORTUNITIES

This decision is not subject to appeal or objection by individuals or organizations.

IMPLEMENTATION DATE

Field layout of implementation units is expected to start the summer of 2019. This decision is not subject to appeal or objection by individuals or organizations.

CONTACT

For additional information concerning this decision, contact: Maurice Huynh, District Silviculturist, Mount Hough Ranger District, Plumas National Forest, 39696 State Highway 70, Quincy, CA, 95971, (530)283-7653.

Barbara Bird 5/9/19

Jerry Bird — Date

Acting Forest Supervisor, Plumas National Forest

REFERENCES

Dailey, S., J. Fites, A. Reiner and S. Mori. 2008. Fire behavior and effects in fuel treatments and protected habitat on the Moonlight Fire. Report prepared by the Fire Behavior Assessment Team: S. Dailey, J. Fites, A. Reiner, and S. Mori. USDA Forest Service. June 2008. Available on-line at: http://www.fs.fed.us/r5/hfqlg/monitoring/resource_reports/fire_and_smoke/dfpz_effectiveness/moonlight_fire_effects_assessment.pdf

North, M., B. Collins, S. Stephens. 2012. Using fire to increase the scale, benefits, and future maintenance of fuels treatments. Journal of Forestry 110 (7): 392-401.

USDA 2004b. Sierra Nevada Forest Plan Amendment Record of Decision

USDA 2008. Moonlight and Wheeler Fires Recovery and Restoration Project Final Environmental Impact Statement (FEIS). Mt Hough Ranger District, Plumas National Forest, USDA Forest Service. September 2008.

USDA 2010. Plumas National Forest Public Motorized Travel Management Record of Decision. Plumas National Forest. Pacific Southwest Region R5-MB189.

USDA 2018. Evaluation of stand conditions with respect to forest insects and diseases in the Franks Valley project. FHP Report NE18-02. Cluck, Danny.

USDA 2019a. Franks Valley Biological Evaluation. Terrestrial and Aquatic Wildlife Report. Mt. Hough Ranger District, Plumas National Forest, USDA Forest Service. February 2019.

USDA 2019b. Initiation Package for Endangered Species Act Consultation-Franks Valley. Mt. Hough Ranger District, Plumas National Forest, USDA Forest Service. February 2019

USDI 2019a. Informal Consultation for the Franks Valley Project, Plumas County, California. US Fish and Wildlife. March 2019.

APPENDIX A-MECHANICAL THIN

General Objective:

Create a structurally diverse stand, both horizontal and vertical, throughout the forested landscape. Emphasize general stand density reductions through the removal of small and medium sized shade tolerant trees. Do so while enhancing larger tree distribution, growth and their contribution to overstory canopy cover.

- No trees greater than 29.9" DBH removed
- Implement tree removal using an "Individuals, Clumps and Openings" (ICO)/"Variable Density Thin" (VDT) approach
    - Typically thin from below in the general "matrix"
    - Retain clumps as appropriate
        - May be especially appropriate in high use California spotted owl areas
    - Create gaps as appropriate
- Range 30% to 50% canopy cover with an average of 40% within 4/5 M/D type stands
    - Average canopy cover may be higher in high use California spotted owl areas
    - Lower residual stand densities on southern aspects/ridgetops
    - Higher residual stand densities on northern aspects/drainages
- General species preference (cut to leave order)
    - White fir
    - Incense cedar
    - Lodgepole
    - Douglas-fir
    - Ponderosa/Jeffrey pine
    - Red fir
    - Sugar pine/black oak
- *Generally* retain shade intolerant, fire resistant trees above 20.0" DBH
    - Exceptions for shade tolerant white fir and incense cedar
    - Trees that are heavily infested with dwarf mistletoe or some other disease
- *Generally* retain Douglas-fir greater than 24.0" DBH except when:
    - Competing with a desired shade intolerant, fire resistant trees species such as Jeffrey pine or black oak

- Heavily diseased

APPENDIX B-ASPEN RX

Background and Overall Goal:

In the Sierra Nevada, aspen stands are in general decline. Low densities of young, vigorous aspen and a lack of larger overstory aspen characterize many of the current stands. It appears that a disrupted disturbance pattern, as well as climate change and grazing pressure, had led to the broad waning of aspen. Successful aspen regeneration/suckering require open sunlight and warm soil temperatures (Pierce and Taylor, 2010). Historic frequent low severity fires reduced conifer competition and encouraged aspen suckering. Due to current fire suppression policies, aspen has not been encourage to sucker and conifer encroachment has shaded out many aspen stands. Conifers within aspen stands increase shade and duff layers, reducing sunlight penetration to the ground and bare mineral soils, which are essential for aspen regeneration and growth. Additionally, because of the high ground fuel loading, some of the recent fires have essentially "cooked" and killed aspen rhizomes, thereby negating any positive effects the fire may have had. Grazing pressure on existing aspen suckers has also had an adverse effect on young aspen health and growth.

Aspen stands should be large, continuous, and comprised of younger regeneration and healthy large overstory trees. Conifers would be mostly absent from the stands, as well as directly surrounding aspen to allow for clone expansion. Open canopy conditions and bare mineral soil would be created to stimulate growth and regeneration. Sprouting species will be more prevalent, primarily in moist areas, because of their ability to regenerate.

Objectives:

- Reduce conifer competition and recruitment
- Increase sunlight to forest floor
- Decrease forest fuels to encourage future low severity fires while reducing high severity stand replacing fires.

Marking Guidelines:

- Remove all true fir up to 30.0" DBH (29.9" DBH or less)
- Remove all pine conifers up to 24.0" DBH
- Remove conifers around the aspen stand so that there are fewer trees on the south to west facing portion of the aspen stand as compared to the north to east facing side.
- Conifer removal should extend one to two tree lengths whenever possible past aspen stand to mitigate for future conifer seed dispersal.
- Areas upland of aspen stand should be thinned to a residual basal area of approximately

40 ft^2/acre comprised mainly of retained pines

APPENDIX C-BAKER CYPRESS

Background and Overall Goal:

Baker Cypress is a rare species of cypress endemic to northern California as well as portions of southwest Oregon. Being seritonous, Baker Cypress cones often require wildfire to open. The primary advantage to this reproductive strategy is that seeds are released under favorable settings.

However, this strategy has not worked well for the Baker Cypress under the current Forest Service fire suppression policy. Under an intact fire regime that consists of long term stand replacing fire cycles, Baker Cypress would be able to mature over several decades, produce cones prior to the stand replacement fire and then a stand replacing fire would create ideal seeding conditions. Because of current fire suppression policies and the resulting build-up of forest fuels, immature Baker Cypress run the risk of dying in a wildfire before they reach cone bearing age. Ironically, current standard fuel treatments reduce the potential for stand replacement fires, thereby preventing the successful seeding and germination of Baker Cypress seeds. Therefore, the challenge is create a silvicultural prescription that protects immature Baker Cypress from frequent stand replacing fire, yet when the time is right, will facilitate one for successful reproduction.

Objectives:

- Reduce the threat to immature Baker Cypress from frequent stand replacing fires
- Facilitate a local, Baker Cypress replacement fire when appropriate without endangering the rest of the stand
- Reduce inter tree competition and encourage growth of the Baker Cypress
- Promote the survival, growth and continuity of larger diameter conifers that are not directly competing with Baker Cypress
- Treatment will be restricted to 10 plots (approximately $1/5^{th}$ acre)

Marking Guidelines

- Baker Cypress Emphasis:
    - Hand fall all conifers up to 19.9" DBH within 50' of Baker Cypress individuals with the exception of sugar pine
    - Girdle trees 20.0" to 29.9" DBH
    - Do not fall or girdle any trees 30.0" DBH or over
    - Lop and scatter limbs of felled trees under the drip line of Baker Cypress to

facilitate future stand replacing fire

- Exclude treated areas from prescribed fire
- May require tactical application of firing patterns during prescribed fires
- Hand line around treated "polygons" may be needed to prevent or reduce the effects of prescribed fire
- Reducing effects of prescribed fire prevents accidental ignition of Baker Cypress prior to its maturity and mitigates the potential for "premature" fuel reduction

- Exclude ridgetop grove from all treatments due to wind throw concerns

APPENDIX D-PROJECT SPECIFIC DESIGN FEATURES AND MITIGATIONS

Botanical Resources

Invasive Plants

- Use agreement clauses to require contractors to meet Forest Service approved vehicle and equipment cleaning requirements/standards prior to using the vehicle or equipment in the National Forest System to prevent and control the introduction, establishment, and spread of aquatic and terrestrial invasive species.
- Use weed-free equipment, mulches, and seed sources. Avoid seeding in areas where revegetation will occur naturally, unless noxious weeds are a concern. Save topsoil from disturbance and put it back to use in onsite revegetation, unless contaminated with noxious weeds. All activities that require seeding or planting will need to use only locally collected native seed sources. Use seed zones for grasses when possible otherwise plant and seed material should be collected from as close to the project area as possible, from within the same watershed and at a similar elevation whenever possible. As necessary, Plumas National Forest botanists will develop project and site specific revegetation and seeding guidelines that will be customized from existing general guidelines.
- Post project monitoring will facilitate the early detection of new populations and allow for developing proposals for treatment before populations get large.
- Reduce the likelihood of spreading known infestations:
- Do not stage equipment, materials, or crews in noxious weed infested areas.
- Flag and Avoid known weed sites in and near proposed treatment units.
- Flag and Avoid noxious weed locations discovered during project implementation.
- Control of known infestations
- Continue implementation of the Moonlight IPT project to contain, control, or eradicate existing infestations in the analysis area (See Figures below).

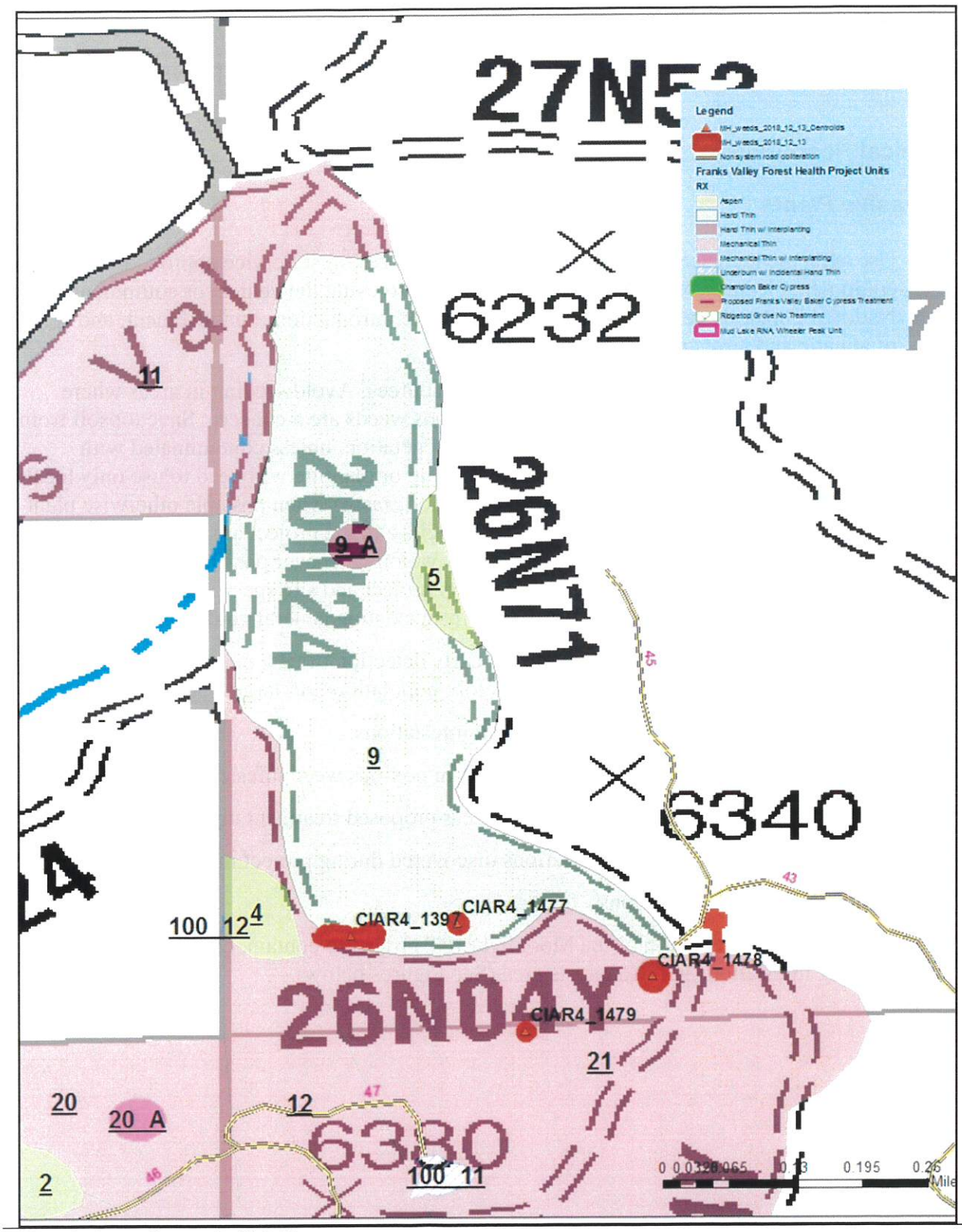


Figure A. Control areas in Unit #9

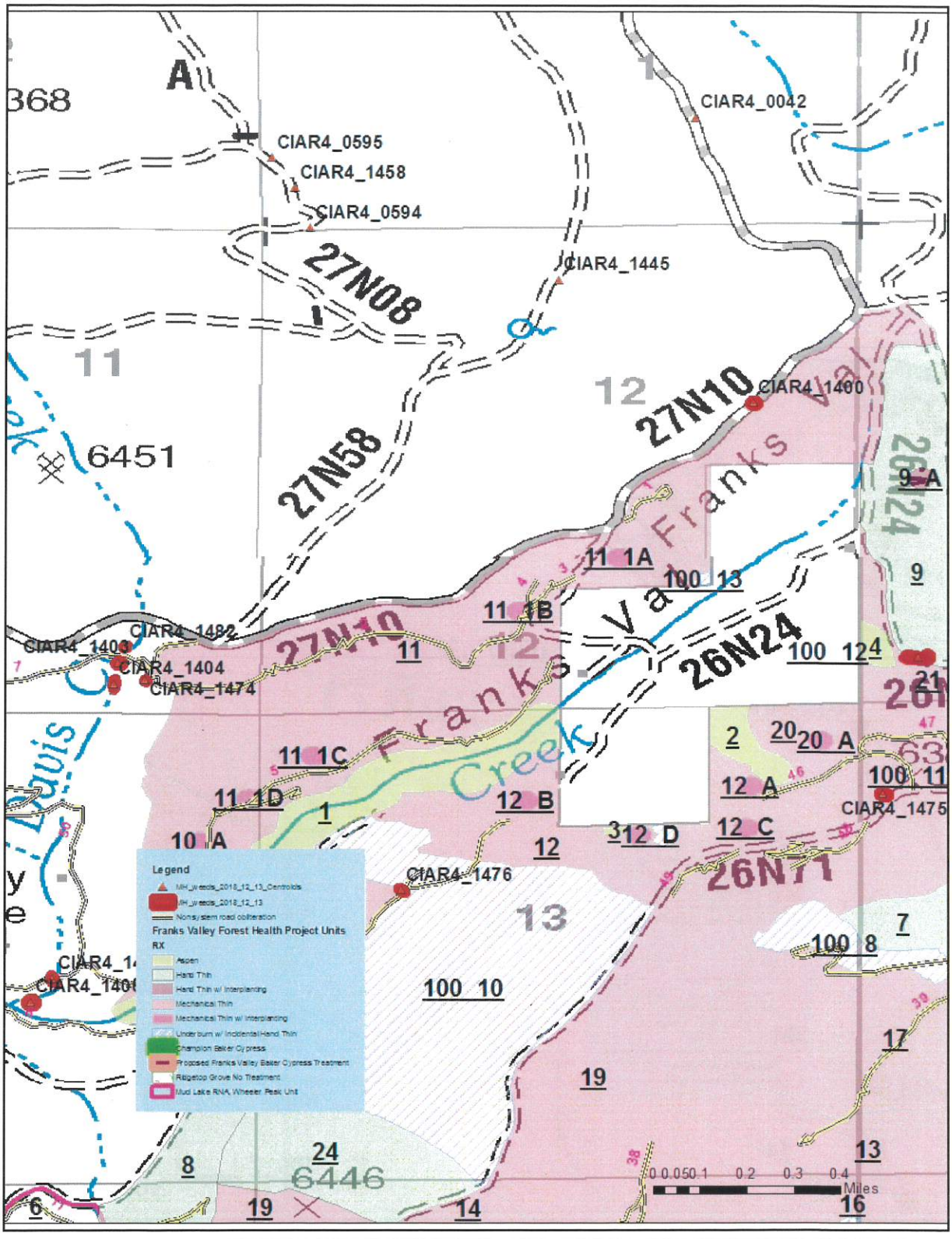


Figure B. Control areas in unit #11 and NSR #7

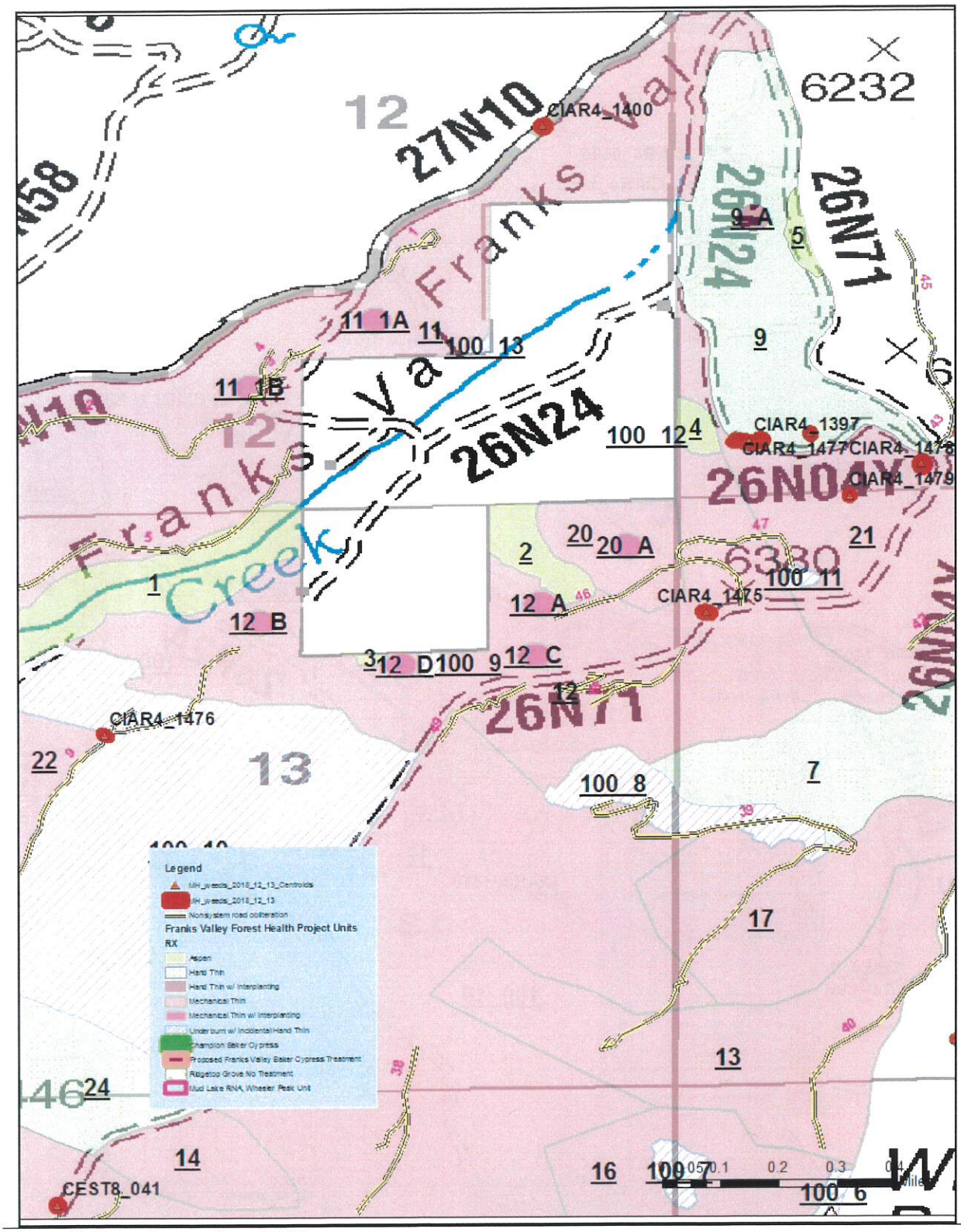


Figure C. Control areas in unit #12

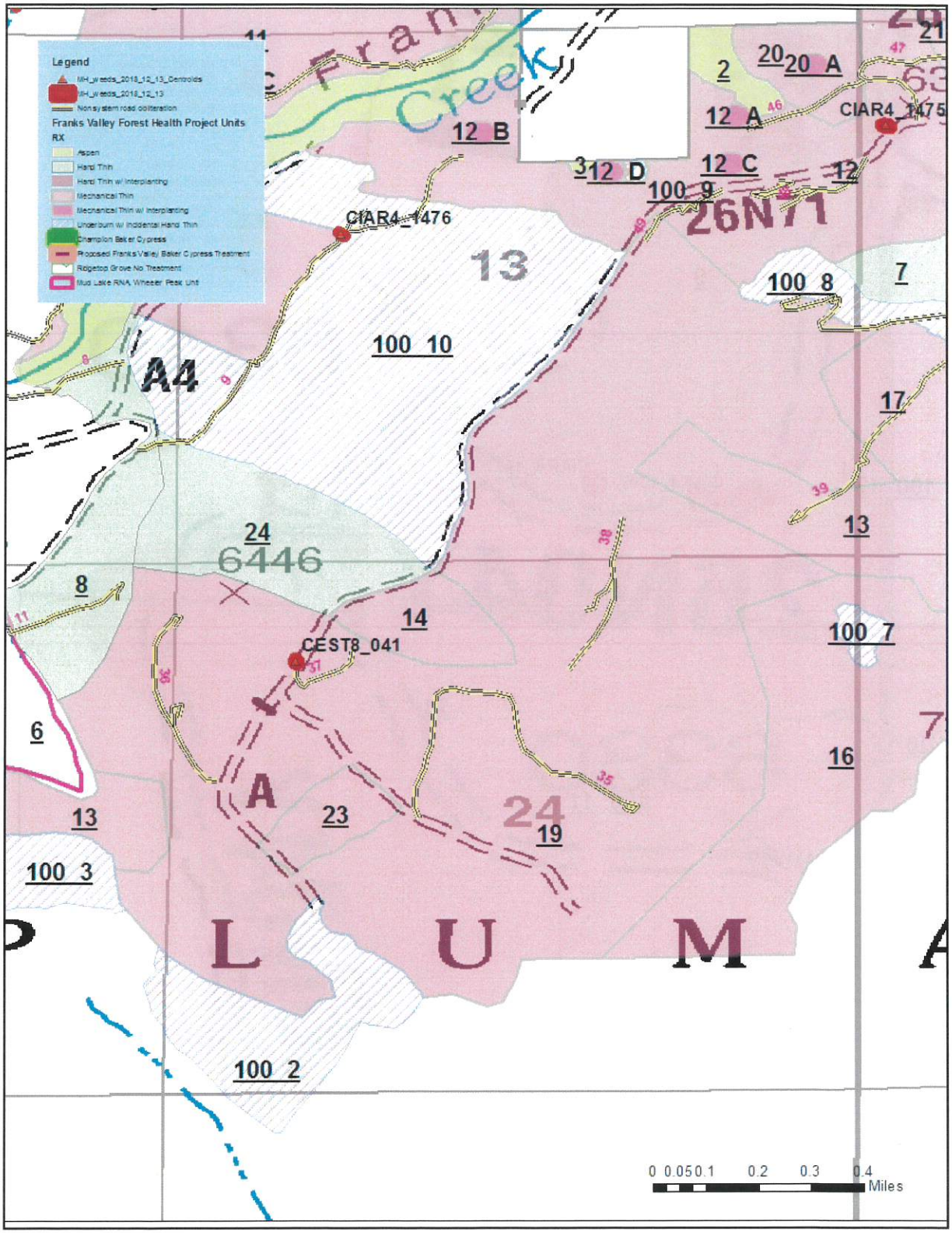


Figure D. Control areas in unit #19

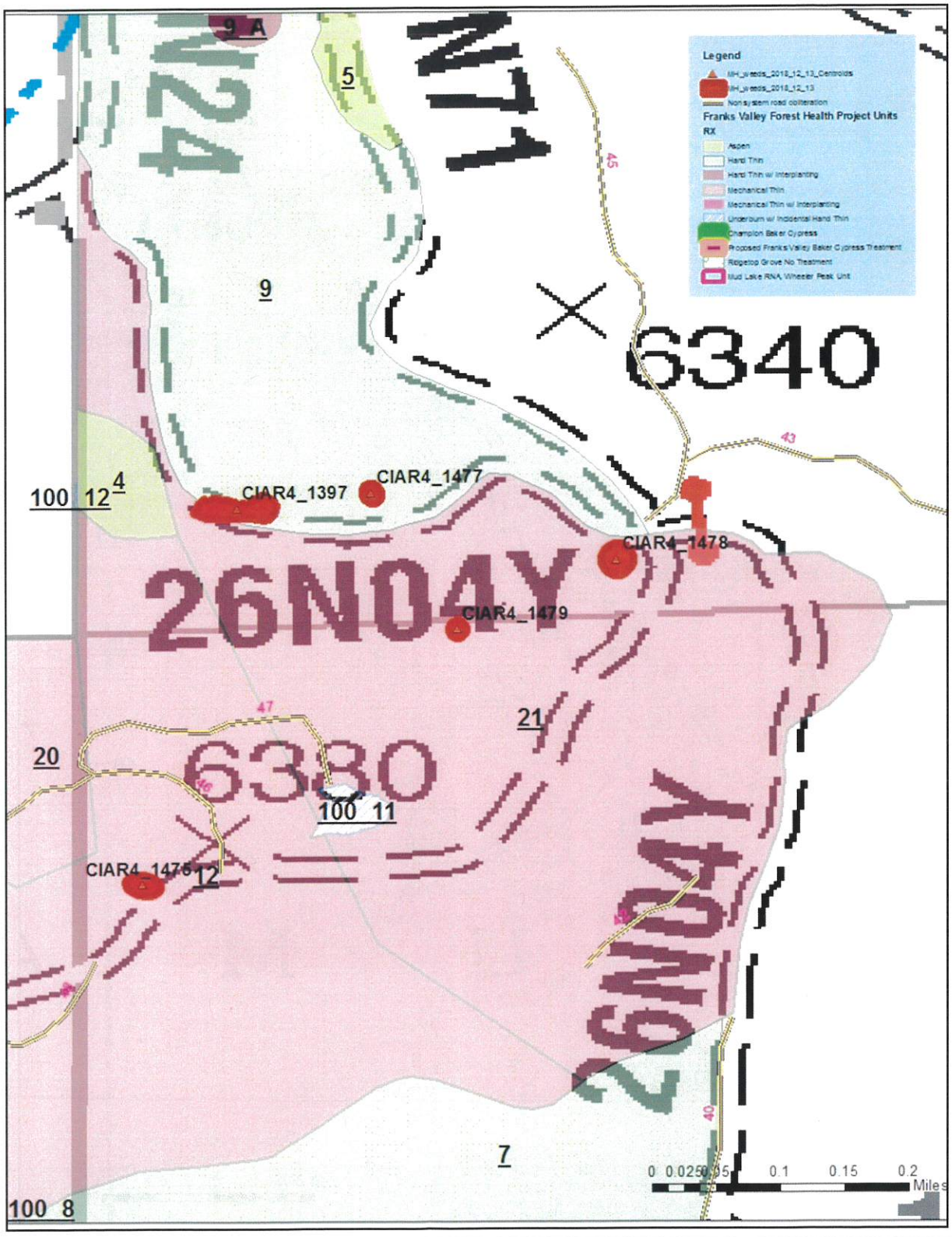


Figure E. Control areas in unit #21

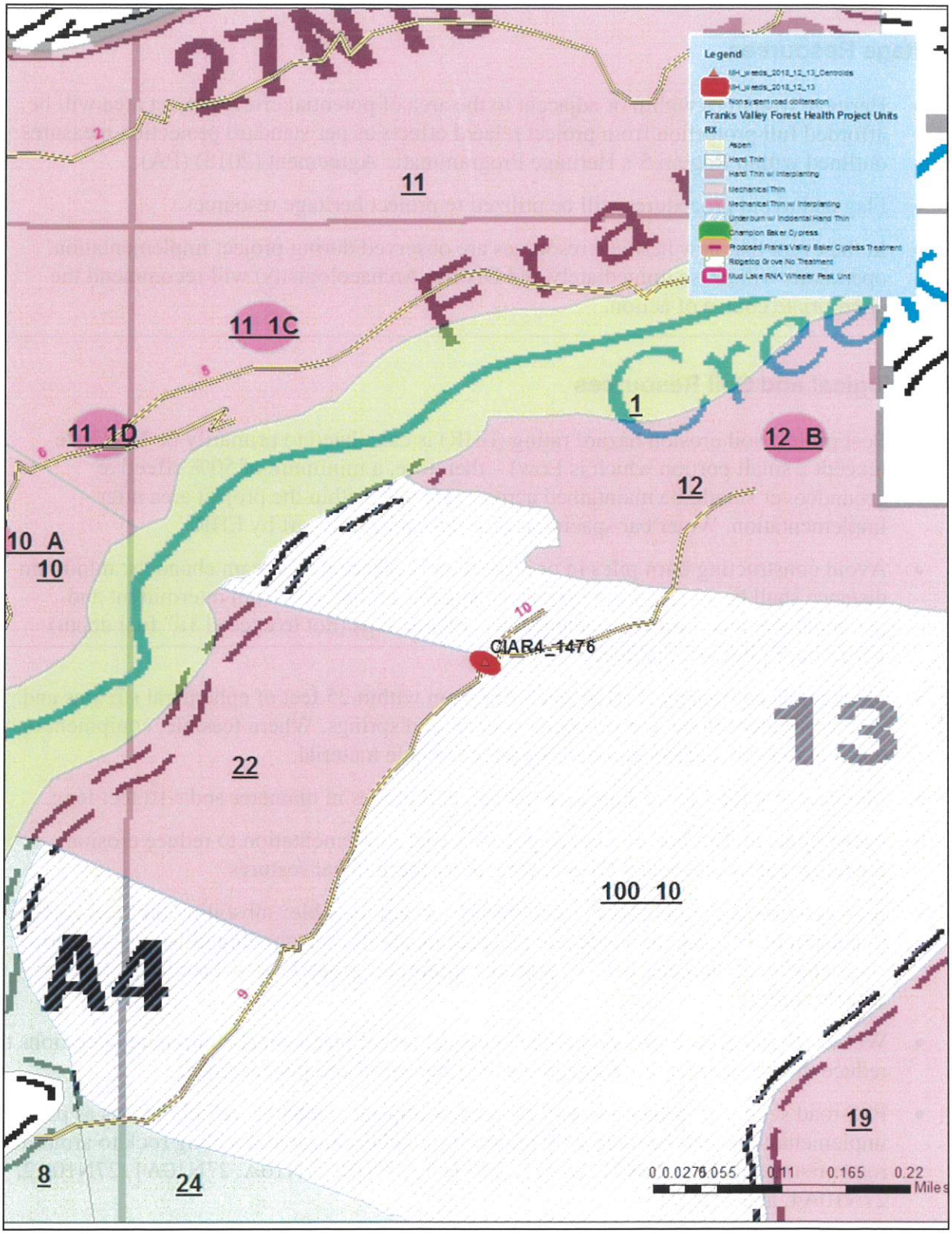


Figure F. Control areas in units #22 and #100_10

Heritage Resources

- Heritage resources within or adjacent to the area of potential effect/project area will be afforded full protection from project related effects as per standard protection measures outlined within Region 5's Heritage Programmatic Agreement (2013) (PA)
- Flag and avoid procedures will be utilized to protect heritage resources
- In the event that new heritage resources are observed during project implementation, operations will cease immediately and District Archaeologist(s) will recommend the appropriate course of action.

Hydrological and Soil Resources

- Post project soil erosion hazard rating (EHR) is calculated to primarily be Moderate (except a small portion which is Low) – therefore, a minimum of 50% effective groundcover should be maintained across each unit within the project area after implementation. Water bar spacing is also determined in part by EHR.
- Avoid constructing burn piles in or immediately adjacent to stream channels: minimum distance shall be 15 feet from ephemeral streams and 82 feet from intermittent and perennial streams. Lop and scatter limbs and tree tops (not to exceed 18" fuel depth) where burn piles are excluded.
- Mechanical equipment shall be excluded from within 25 feet of ephemeral streams and 82 feet of intermittent and perennial streams and springs. Where feasible, equipment may reach in to these buffers and remove merchantable material.
- Maintain at least 4 down logs/acre that are >10 inches in diameter and >10 feet long.
- Rehabilitate all fire line as soon as possible after implementation to reduce erosion potential and unauthorized OHV traffic along these linear features.
- Non-system road obliteration would involve, where feasible; subsoiling the road surface to a depth of 18", re-contouring the prism to match the surrounding hillslope, scattering slash and small diameter trees to meet the minimum groundcover standard and to deter vehicle traffic.
- Wet weather soil restrictions shall be enforced for all mechanical equipment operations to reduce the occurrence of detrimental soil compaction and displacement.
- FSS road segments vulnerable to wet weather impacts related to vehicle access as part of implementation shall be treated by improving road drainage and adding rock to armor the road prism (26N04Y, 26N24, 26N71, 26N71A, 27N10, 27N10A, 27N10A1, 27N10A2, 27N10A4, and 27N53).

Recreation Resources

There are 3 rec event bike rides that ride the paved road through Genesee. All 3 are single day events. One of the 3 also uses the 27N10 road. It is the Bear Growl put on by Mountain Circle Family Services in Greenville.

- Project activities should cease the day of the Bear Growl event. Haul should cease on the dates of all 3 events.
    - Grinduro event typically occurs the last weekend of September/first weekend of October
    - Bear Growl event typically occurs during the third weekend of September
    - Century Ride event typically occurs the Saturday of Memorial Weekend.
- Rehab any fire lines, skid trails and temp roads to prevent user made trails.

Silviculture Resources

- Conifer stumps 14 inches and greater in diameter would be treated with a registered borate within eight hours, to prevent the introduction and spread of *Heterobasidion* root disease. Within Recreation Areas, apply borate compound within 4 hours to all pine and true fir cut stumps greater than 3 inches in diameter.
- Retain and protect high value wildlife habitat trees (trees with multiple tops, broken tops, rot, cavities, and other formations) that create structure for nests and dens.
- Retain the number of snags per acre appropriate for each forest type unless removal is required to allow for operability. In Sierra mixed conifer types and ponderosa pine forest types, retain four of the largest snags per acre. Snags larger than 15 inches DBH and 20 feet in height would be used to meet this guideline.
- Where present, retain all hardwood and riparian species. Retain the largest, most vigorous dominant and co-dominant trees to create a residual stand that would be comprised of larger fire resilient trees. Species preference would be determined by dominant forest type. In general, prefer to retrain shade intolerant species including rust resistant sugar pine, black oak, ponderosa and Jeffery pine, and Douglas fir, unless otherwise specified in unit specific marking guidelines.
- Motorized trails will be protected from damage as much as possible and shall be restored back to its original condition if damaged by operations. These trails are to be closed to the public during active operations that utilize these trails. Trails will be signed during these closures. The Forest Service will be notified 21 days prior to entering the units that the trails are included in or adjacent to. Closure will be by mutual agreement as to timing, duration and type and location of safety signs.
- No decking of landing piles on trails. Trails are to remain open after they have been utilized for project purposes.

Wildlife Resources

Limited Operating Periods (LOPs)

LOPs can be lifted by the District Wildlife Biologist if birds are absent or not nesting. If presently unknown wildlife are discovered prior to or during implementation, and the species identified warrants a LOP, protections would be implemented. An LOP will be applied within 0.25 mile of the boundary of occupied PACs, as well as within 0.25 mile of any active nests.

Table A. Limited operating periods (LOPs) for the Plumas National Forest

Species	Location	Limited Operating Period	Reference Pages
Yellow-legged Frogs	Instream work	Dry Stream Channel or pre-project survey	Biological Opinion
	Upland work and burning	October 01 – April 15	Biological Opinion
Bald Eagle	Within designated territories (1/2 mile around nest)	November 1 - August 31	2 - 8*
	Winter roosts	November 1 - March 1	
California Spotted Owl	Within 1/4 mile of nests or within protected activity center boundary	March 1 - August 15	2 - 8* Modified by October 2006 RO Letter
Great Gray Owl	Within 1/2 mile of nesting sites	March 1 - August 31	2 - 8*
Goshawk	Within 1/4 mile of nests or within protected activity center boundary	February 15 - September 15	A - 60**
Sierra marten	100 acre den site buffer	May 1 - July 31	A - 62**
Pacific Fisher	700 acre den site buffer	March 1 - June 30	A - 61**
Pallid Bat and Townsend's Big-eared Bat	W/in 1/4 mile of maternity and other roosts	May 1 – August 15	Professional Judgment

Table B. Riparian Conservation Area Treatment Design Criteria by RCA Type.

Stream Type	Riparian Conservation Area (RCA) widths	Minimum distance to burn pile	Equipment Exclusion Zone	
			Slope <35%	Slope >35%
Perennial streams*	300 feet	82 feet	100 feet	Excluded
Intermittent stream*	150 feet	82 feet	82 feet	Excluded
Ephemeral stream	150 feet	15 feet	25 feet	Excluded
Special Aquatic* Features (Reservoirs, wetlands, fens, and springs)	300 feet	50 feet	100 feet	Excluded
Riparian features, dry meadows, seasonal wetlands	150 feet	25 feet	50 feet	Excluded

Table C. Yellow legged frog conservation measures

Criterion	Actions
Mechanical Harvest	No heavy equipment allowed within 82 feet from perennial or intermittent streams that have suitable habitat for frogs (includes harvest equipment, road building equipment, mastication equipment, etc.). Exceptions: trees may be removed with mechanical entry from 33 feet to 82 feet of the stream during the summer season (April 16 – October 31) when frogs are restricted to within 33 feet of streams. All equipment use would limit tracking to be perpendicular to the stream to limit portion of ground impacted.
Chainsaw Thinning	Chainsaw thinning allowed within the inner RCA, but no piling of material within 82 feet of perennial streams over 4500 feet elevation. No piling within 25 feet of perennial or intermittent streams at all elevations. Chainsaw thinning over 4500 feet elevation would be restricted to summer season when frogs are in streams, and not in uplands.
Prescribed Burning	No prescribed fire ignited within 82 feet of streams over 4500 feet elevation.
Sediment Production	Adhere to all Best Management Practices and Standard Operating Procedures to prevent sediment from reaching streams as a result of all project activities.
Drafting sites	New or existing water draft sites would be evaluated with the Mt. Hough Ranger District Biologist prior to changes or use. Drafting sites shall be visually surveyed for amphibians and their eggs before drafting begins Back down ramps would be constructed and or maintained to ensure the streambank stability is maintained and sedimentation is minimized. Forest personnel and contractors shall use the Forest Service approved suction strainer (FSM 5161) or other foot vales with screens having openings less than 2mm in size at the end of drafting hoses. The suction strainer shall be inserted close to the substrate in the deepest water available; the suction strainer shall be placed on a shovel, over plastic sheeting, or in a canvas bucket to avoid uptake of substrate or aquatic biota.